

Operationalizing and Implementing Pretrained, Large Artificial Intelligence Linguistic Models in the US Health Care System: Outlook of Generative Pretrained Transformer 3 (GPT-3) as a Service Model

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Abstract

Generative pretrained transformer models have been popular recently due to their enhanced capabilities and performance. In contrast to many existing artificial intelligence models, generative pretrained transformer models can perform with very limited training data. Generative pretrained transformer 3 (GPT-3) is one of the latest releases in this pipeline, demonstrating human-like logical and intellectual responses to prompts. Some examples include writing essays, answering complex questions, matching pronouns to their nouns, and conducting sentiment analyses. However, questions remain with regard to its implementation in health care, specifically in terms of operationalization and its use in clinical practice and research. In this viewpoint paper, we briefly introduce GPT-3 and its capabilities and outline considerations for its implementation and operationalization in clinical practice through a use case. The implementation considerations include (1) processing needs and information systems infrastructure, (2) operating costs, (3) model biases, and (4) evaluation metrics. In addition, we outline the following three major operational factors that drive the adoption of GPT-3 in the US health care system: (1) ensuring Health Insurance Portability and Accountability Act compliance, (2) building trust with health care providers, and (3) establishing broader access to the GPT-3 tools. This viewpoint can inform health care practitioners, developers, clinicians, and decision makers toward understanding the use of the powerful artificial intelligence tools integrated into hospital systems and health care.